

REMARKS

Reconsideration of the application is requested in view of the above amendments and the following remarks. Claims 5, 11, 26 and 38 are canceled without prejudice or disclaimer. Claims 1, 9, 10, 12-15, 20, 25, 36, 37 and 40 have been amended. Claim 1 has been amended to include the limitations of claim 5 and is further supported by at least Figures 2-4 of the present application. The amendments to claims 9 are supported by at least Figures 2 and 3 of the present application. Claims 10, 12-15 and 20 have been amended in view of the amendments to claim 9 and are further supported by at least Figures 2 and 3 of the present application. Claim 25 has been amended to include the limitations of canceled claim 26 and is further supported by Figures 2 and 3 of the present application. The amendments to claim 36 are also supported by at least Figures 2 and 3 of the present application. Claim 37 has been amended to include the limitations of canceled claim 38 and to clarify the limitations related to the heat sensor. Claim 40 is amended in view of the cancellation of claim 38. No new matter has been added.

Claim Objection

Claim 36 has been amended to correct the formal matter noted by the Examiner.

§ 103 Rejections

Claims 25, 27, 28 and 35 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Phyle (U.S. 5,584,564) in view of Kim (U.S. 3,769,503) and further in view of Holland (U.S. 3,739,792). Applicants respectfully traverse this rejection.

Phyle discloses a battery operated lighting apparatus that is well suited for use in outdoor structures such as patio tables, umbrellas, dining canopies and tents. The device includes a housing 10 mounted to a support pole 20 and a lighting device 12 secured to supporting ribs 22 of the umbrella. Phyle discloses the use of the lighting devices 12 solely for the purpose of generating light. There is no disclosure or suggestion whatsoever by Phyle that the lighting devices 12 are intended to provide heat, much less infrared heat. Phyle also discloses mounting of the lighting devices 12 directly to the supporting ribs 22, which supporting ribs support and are in direct contact with the canopy 2. Struts 24 are pivotally connected to the ribs 22 at a first

end 24A and are pivotally connected to a slide 26, which slide is connected about the support pole 20.

Holland discloses a battery-operated umbrella that generates heat via a resistive wire 112 that is located within the channels 119 of the support ribs 16. The support ribs 16 support and are in direct contact with the umbrella canopy 2. Cross-connecting members or braces 15 extend between a support column 7 and the flexible ribs 16.

Kim discloses a fixture for a lamp that emits both light and heat and directs light and heat from the lamp in a given direction. Neither Phyle, Holland, or Kim discloses or suggests "a plurality of intermediate support members coupled between the radially extended support members and the stand member; and an infrared heating element secured to an outer surface of at least one of the intermediate support members," as required by claim 25. Phyle, Holland and Kim also fail to disclose or suggest an infrared heating element "providing substantially solely infrared heat," as required by claim 25. While Phyle and Kim disclose lighting devices and Holland discloses a radiant heating device, both of which generate some infrared heat, none of the heating elements disclosed by Phyle, Kim and Holland provides substantially solely infrared heat, as required by claim 25. Therefore, Phyle, Holland and Kim fail to disclose or suggest every limitation of claim 25 and the claims that depend from it.

Claims 29-31 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Phyle in view of Kim, Holland and further in view of JP2002-100208. Applicants respectfully traverse this rejection. As discussed above, Phyle, Kim and Holland fail to disclose or suggest every limitation of claim 25. JP '208 fails to remedy the deficiencies of Phyle, Kim and Holland as they relate to claim 25. Therefore, claims 29-31 are allowable for at least the reason they are dependent upon an allowable base claim. Applicants do not concede the correctness of this rejection.

Claim 26 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Phyle in view of Kim, Holland, Mohn (U.S. 3,313,921), and further in view of GB 2381308. Applicants respectfully traverse this rejection. Claim 26 has been canceled and the limitations of that claim added to claim 25. Applicants address this rejection to the extent it may apply to amended claim 25.

The sole purpose and function of the lighting apparatus disclosed by Phyle is to produce light for use with an outdoor structure such as a patio umbrella. If the lighting devices 12 disclosed by Phyle were replaced with, for example, the device disclosed by Mohn which eliminates visible light but that produces pure infrared energy, the purpose and function of the Phyle device would be completely eliminated. Therefore, it would be improper to replace the lighting devices 12 disclosed by Phyle with the configuration of Mohn that produces pure infrared energy and no visible light.

The rejection also contends the GB '308 teaches the use of solely infrared heat in an outdoor heater. However, it is clear from GB '308 that separate lighting and infrared heat generating members are required in order to fulfill the purposes of GB '308. The purpose of GB '308 is to have control over what light is produced (e.g., with the lights 9) separate from production of heat using the infrared panels 3. Without the lights 9, the device disclosed by GB '308 would not produce light. Replacing the heating devices 12 disclosed by Phyle with the infrared heating panels 3 disclosed by GB '308 would also render the Phyle device inoperable for its intended purpose. Therefore, it would not be obvious to combine GB '308 with Phyle, or a combination of the other cited references to produce the limitations of claim 25.

Furthermore, none of cited references disclose or suggest mounting an infrared heating element to an outer surface to at least one of the intermediate support members, wherein the intermediate support members are coupled between the webbing support members and the stand member, as required by claim 25.

Claims 32-34 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Phyle in view of Kim, Holland, JP '208, and further in view of Mohn. Applicants respectfully traverse this rejection. As noted above, Phyle, Kim and Holland fail to disclose or suggest every limitation of claim 25. JP '208 and Mohn fail to remedy the deficiencies of Phyle, Kim and Holland as they relate to claim 25. Therefore, claims 32-34 are allowable for at least the reason they are dependent upon an allowable base claim. Applicants do not concede the correctness of this rejection.

Claims 1, 2, 4, 6, 8-21, 36, 37 and 39 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Phyle in view of Kim, Holland, Mohn and further in view of GB '308.

Applicants respectfully traverse this rejection. Claim 11 has been canceled and the limitations thereof have been added to claim 9. Therefore, the rejection of claim 11 will be addressed to the extent that it may apply to amended claim 9.

As discussed above, Phyle discloses a lighting apparatus configured for producing light for an outdoor structure such as a patio umbrella. The sole purpose and function of the apparatus disclosed by Phyle is to produce light. Phyle fails to disclose or suggest using the lighting devices 12 to produce heat and further fails to disclose or suggest any other devices that may be used for the purpose of generating heat (especially substantially solely producing heat), or that heat generation is a byproduct of the functioning apparatus. Modifying the Phyle apparatus such that it does not produce visible light would render the Phyle apparatus completely inoperable for its intended purpose. Thus, there is no disclosure or suggestion by Phyle of heating elements that provide "substantially solely infrared heat and substantially no visible light" as required by claim 1.

The other cited references of Kim, Holland, Mohn and GB '308 may disclose heating elements that produce infrared heat; however, even if one of these references or a combination of references did disclose an infrared heating element that "provides substantially solely infrared heat, and substantially no visible light," as required by claim 1, the combination of these references with Phyle is impermissible. Therefore, Phyle in view of Kim, Holland, Mohn and GB '308 fails to disclose or suggest every limitation of claim 1 and the claims that depend from it.

Further, the cited references fail to disclose or suggest "a plurality of reflectors . . . being positioned between all portions of the heating element exposed to the shroud and the shroud to direct the infrared heat away from the shroud," as required by claim 1. Phyle, Holland, Mohn and GB '308 fail to disclose or suggest reflectors. The reflector disclosed by Kim, in particular those reflectors associated with tube-shaped infrared heating elements (as required by claim 1) are open at ends of the reflector. If the device disclosed by Kim were to replace the lighting elements 12 disclosed by Phyle (which Applicants do not concede is permissible), at least portions of the light source 11 (the infrared heat generating member) of Kim would be exposed to the shroud without a portion of the reflector position therebetween.

The cited references further fail to disclose or suggest "reflectors being spaced apart from the shroud with an air insulated space therebetween," as required by claim 1. The heating devices disclosed by Phyle are mounted directly to support ribs 22, which support ribs engage the canopy 2. Holland discloses heating elements embedded within channels 119 formed by ribs 16 that support the canopy 2. The other cited references fail to disclose a collapsible shroud. Thus, none of the cited references disclose an air insulate space between the heat generating members and the shroud. Therefore, the cited references fail to disclose or suggest reflectors positioned between all portions of the heating element and the shroud and an air insulated space between the reflectors and the shroud.

Claim 9 requires a plurality of intermediate supports extending between the stand member of the patio umbrella and the webbing supports that supports the webbing of the patio umbrella. The at least one heating element of claim 9 is mounted to the intermediate support and the heating element provides substantially solely infrared heat. Applicants submit that Phyle, Kim and Holland fail to disclose or suggest every limitation of claim 9 for at least those reasons discussed above related to claim 25. Mohn and GB '308 fail to remedy the deficiencies of Phyle, Kim and Holland as they relate to mounting of a heating element to an intermediate support that extends between a stand and webbing supports of a patio umbrella. Therefore, the cited references fail to disclose or suggest every limitation of claim 9 and the claims that depend from it.

Claim 9 also requires that the heating element provides "substantially solely infrared heat." As discussed above, it is impermissible to modify the file reference to replace the lighting devices 12 with the infrared heating devices disclosed by Kim, Holland, Mohn or GB '308 that produce substantially solely infrared heat because those types of infrared heaters (as disclosed in those references) do not produce light. Therefore, it would not be obvious to combine Phyle, Kim, Mohn, Holland and GB '308 to produce every limitation required by claim 9 for this additional reason.

Claim 36 is directed to a method of heating objects in proximity to a patio umbrella using an infrared heating element. The claimed infrared heating elements are positioned "at a location within the umbrella enclosed spaced apart from the shroud with an air insulated spacing

therebetween." The method of claim 36 also requires "directing substantially solely infrared waves and substantially no light from the infrared heating element." As described above, it is impermissible to modify Phyle in such a way that the lighting apparatus cannot produce light, which modification would be required in order to obtain the limitations of claim 36. There is no disclose or suggestion by Phyle or the Kim, Holland, Mohn and GB '308 references that meet the limitations of claim 36 related to producing solely infrared waves and substantially no light from the infrared heating element.

Further, none of the cited references disclose or suggest an infrared heating element positioned within the umbrella enclosure and spaced apart from the shroud with an air insulated spacing. As noted above, Phyle discloses mounting of the lighting devices 112 directly to the ribs 22 that support the canopy 2. Holland discloses heating elements positioned within the support members that support the canopy 2. GB '308 fails to disclose infrared heating elements positioned with an umbrella enclosure and further fails to disclose support ribs or mounting of the infrared heating element to the support rib. Mohn and Kim fail to disclose or suggest any of the umbrella features or mounting limitations of claim 36. Therefore, the combination of Phyle, Kim, Holland, Mohn and GB '308 fails to disclose or suggest every limitation of claim 36 for this additional reason.

Claim 37 is directed to a heated patio furniture set that includes the subject matter of allowable claim 38. The amendments to claim 37 do not directly track the language of original claim 38 due to some revisions made to clarify that the heat sensor may be mounted to the table or to the chair. Applicants submit that the cited references fail to disclose or suggest every limitation of claim 37 as amended.

In view of the above, Applicants submit that Phyle, Kim, Holland, Mohn and GB '308 fail to disclose or suggest every limitation of claims 1, 9, 36 and 37 and the claims that depend from them.

Claim 5 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Phyle in view of Kim, Holland, Mohn, and GB '308 and further in view of JP 2002-100208. Applicants respectfully traverse this rejection. Claim 5 has been canceled rendering this rejection moot as to

that claim. Applicants address this rejection to the extent that it may apply to claim 1 as amended to include the plurality of reflectors.

Applicants submit that JP '208 fail to remedy the deficiencies of Phyle, Kim, Holland, Mohn and GB '308 as they relate to claim 1 for at least those reasons discussed above concerning the reflectors. Specifically, JP '208 fails to disclose or suggest "the reflectors being spaced apart from the shroud with an air insulated space therebetween," as required by claim 1. Therefore, claim 1 is allowable even in view of Phyle, Kim, Holland, Mohn and GB '308 and JP '208.

Claim 7 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Phyle in view of Kim, Holland, Mohn, GB '308 and further in view of Sheppard (U.S. 5,216,948). Applicants respectfully traverse this rejection. As discussed above, Phyle, Kim, Holland, Mohn and GB '308 fail to disclose or suggest every limitation of claim 1. Sheppard fails to remedy the deficiencies of those references as they relate to claim 1. Therefore, claim 7 is allowable for at least the reason it is dependent upon and allowable base claim. Applicants do not concede the correctness of this rejection.

Claims 22 and 24 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Phyle in view of Kim, Holland, Mohn, and GB '308, and further in view of Clark (U.S. 5,964,233). Applicants respectfully traverse this rejection. As discussed above, Phyle, Kim, Holland, Mohn and GB '308 fail to disclose or suggest every limitation of claim 9. Clark fails to remedy the deficiencies of those references as they relate to claim 9. Therefore, claims 22 and 24 are allowable for at least the reason they are dependent upon an allowable base claim. Applicants do not otherwise concede the correctness of this rejection.

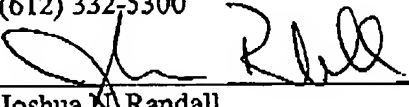
Claim 23 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Phyle in view of Kim, Holland, Mohn, GB '308, and DE3147085, and further in view of Jane (U.S. 6,091,888). Applicants respectfully traverse this rejection. As discussed above, Phyle, Kim, Holland, Mohn and GB '308 fail to disclose or suggest every limitation of claim 9. DE '085 and Jane fail to remedy the deficiencies of those cited references as they relate to claim 9. Therefore, claim 23 is allowable for at least the reason they it is dependent upon on an allowable base claim. Applicants do not otherwise concede the correctness of this rejection.

In view of the above, Applicants request reconsideration of the application in the form of a Notice of Allowance. If a phone conference would be helpful in resolving any issues related to this matter, please contact Applicants' attorney listed below at 612-371-5387.

Respectfully submitted,

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